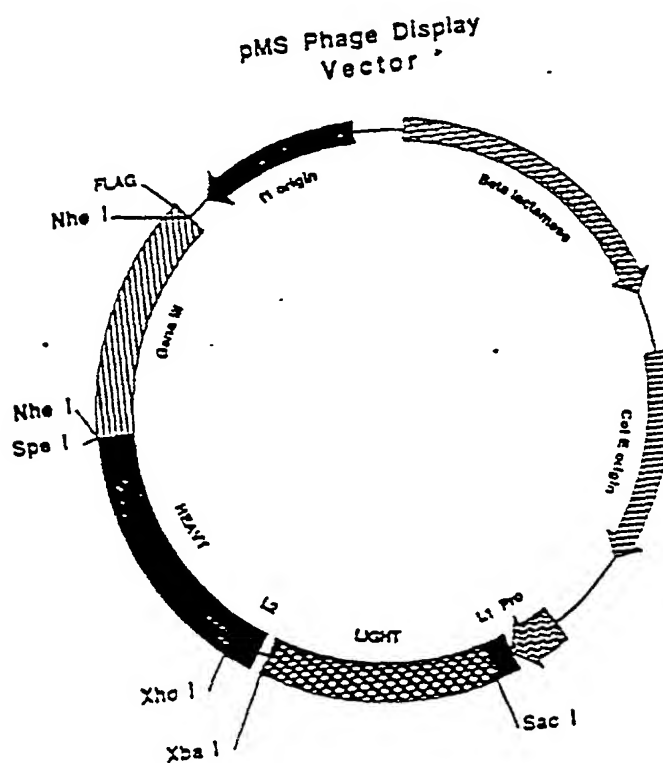FIGURE 1
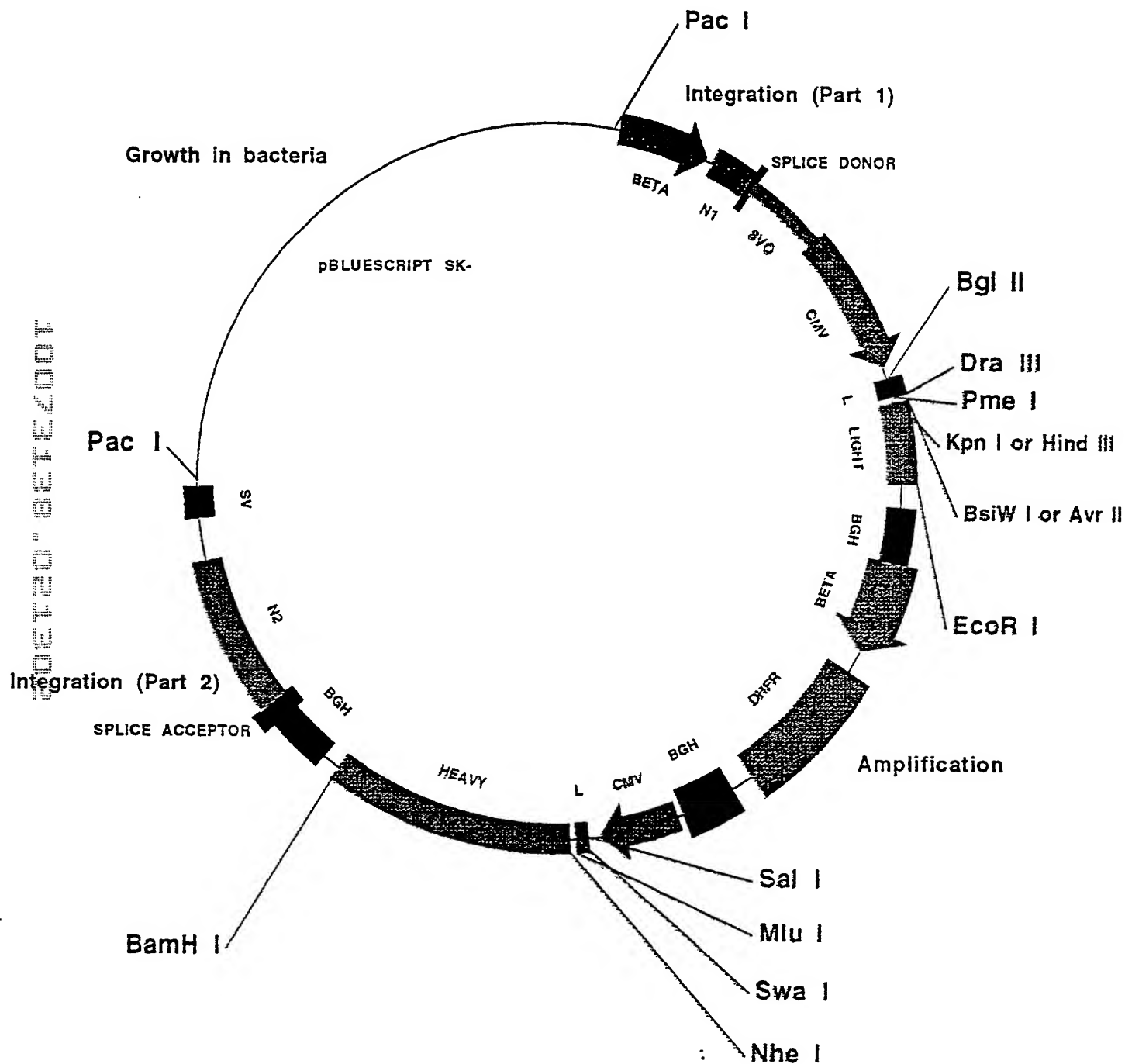
Figure 1: pMS Phage Display Vector. Pro = Lac Z promoter. L1 = Omp A leader. L2 = Pel B leader. Light = light chain . Heavy = heavy chain.

pMS Phage Display Vector

FIGURE 2

NEOSPLA

CMV   = Cytomegalovirus promoter/enhancer
BETA   = Mouse Beta globin major promoter
SVO   = SV40 origin
BGH   = Bovine growth hormone polyadenylation
SV   = SV40 polyadenylation
N1   = Neomycin phosphotransferase exon 1
N2   = Neomycin phosphotransferase exon 2
LIGHT = Human immunonoglobulin kappa or lambda constant region
DHFR   = Dihydrofolate Reductase
HEAVY = Human immunonoglobulin gamma 1 or gamma 4 PE or ...

FIGURE 3a

```
Frame 1  M   R   V   P   A   Q   L   L   G   L   L   L   L   W   L   P   G   A   R
         ATG AGG GTC CCC GCT CAG CTC CTG GGG CTC CTG CTG CTC TGG CTC CCA GGT GCA CGA
                 9           18          27          36          45          54

         C   A   Y   E   L   T   Q   P   P   S   V   S   V   S   P   G   Q   T   A   R   I
         TGT GCC TAT GAA CTG ACT CAG CCA CCC TCG GTG TCA GTG TCC CCA GGA CAG ACG GCC AGG ATC
             63          72          81          90          99          108         117

         T   C   G   G   D   N   S   R   N   E   Y   V   H   W   Y   Q   Q   K   P   A   R
         ACC TGT GGG GGA GAC AAC AGT AGA AAT GAA TAT GTC CAC TGG TAC CAG CAG AAG CCA GCG CGG
             126         135         144         153         162         171         180

         A   P   I   L   V   I   Y   D   D   S   D   R   P   S   G   I   P   E   R   F   S
         GCC CCT ATA CTG GTC ATC TAT GAT GAT AGT GAC CGG CCC TCA GGG ATC CCT GAG CGA TTC TCT
            189          198         207         216         225         234         243

         G   S   K   S   G   N   T   A   T   L   T   I   N   G   V   E   A   G   D   E   A
         GGG TCC AAA TCA GGG AAC ACC GCC ACC CTG ACC ATC AAC GGG GTC GAG GCC GGG GAT GAG GCT
            252         261         270         279         288         297         306

         D   Y   Y   C   Q   V   W   D   R   A   S   D   H   P   V   F   G   G   G   T   R
         GAC TAT TAC TGT CAG GTG TGG GAC AGG GCT AGT GAT CAT CCG GTC TTC GGA GGA GGG ACC CGG
            315         324         333         342         351         360         369

         V   T   V   L   G   Q   P   K   A   A   P   S   V   T   L   F   P   P   S   S   E
         GTG ACC GTC CTA GGT CAG CCC AAG GCT GCC CCC TCG GTC ACT CTG TTC CCG CCC TCC TCT GAG
            378         387         396         405         414         423         432

         E   L   Q   A   N   K   A   T   L   V   C   L   I   S   D   F   Y   P   G   A   V
         GAG CTT CAA GCC AAC AAG GCC ACA CTG GTG TGT CTC ATA AGT GAC TTC TAC CCG GGA GCC GTG
            441         450         459         468         477         486         495

         T   V   A   W   K   A   D   S   S   P   V   K   A   G   V   E   T   T   T   P   S
         ACA GTG GCC TGG AAG GCA GAT AGC AGC CCC GTC AAG GCG GGA GTG GAG ACC ACC ACA CCC TCC
            504         513         522         531         540         549         558

         K   Q   S   N   N   K   Y   A   A   S   S   Y   L   S   L   T   P   E   Q   W   K
         AAA CAA AGC AAC AAC AAG TAC GCG GCC AGC AGC TAC CTG AGC CTG ACG CCT GAG CAG TGG AAG
            567         576         585         594         603         612         621

         S   H   R   S   Y   S   C   Q   V   T   H   E   G   S   T   V   E   K   T   V   A
         TCC CAC AGA AGC TAC AGC TGC CAG GTC ACG CAT GAA GGG AGC ACC GTG GAG AAG ACA GTG GCC
            630         639         648         657         666         675         684

         P   T   E   C   S   .
         CCT ACA GAA TGT TCA TGA
            693         702
```

Length of 7C10 heavy/Primatized: 1431 bp; Listed from: 1 to: 1431;
Translated from: 1 to: 1429 (Entire region);
Genetic Code used: Universal; Fri, May 26, 1995 11:11 AM

```
Frame 1   M   K   H   L   W   F   F   L   L   L   V   A   A   P   R   W   V   L   S
          ATG AAA CAC CTG TGG TTC TTC CTC CTC CTG GTG GCA GCT CCC AGA TGG GTC CTG TCC
                  9           18          27          36          45          54


          Q   V   K   L   Q   Q   W   G   E   G   L   L   Q   P   S   E   T   L   S   R   T .
          CAG GTG AAG CTG CAG CAG TGG GGC GAA GGA CTT CTG CAG CCT TCG GAG ACC CTG TCC CGC ACC
                  63          72          81          90          99          108         117


          C   V   V   S   G   G   S   I   S   G   Y   Y   Y   W   T   W   I   R   Q   T   P
          TGC GTT GTC TCT GGT GGC TCC ATC AGC GGT TAC TAC TAC TGG ACC TGG ATC CGC CAG ACC CCA
                  126         135         144         153         162         171         180


          G   R   G   L   E   W   I   G   H   I   Y   G   N   G   A   T   T   N   Y   N   P
          GGG AGG GGA CTG GAG TGG ATT GGC CAT ATT TAT GGT AAT GGT GCG ACC ACC AAC TAC AAT CCC
                  189         198         207         216         225         234         243


          S   L   K   S   R   V   T   I   S   K   D   T   S   K   N   Q   F   F   L   N   L
          TCC CTC AAG AGT CGA GTC ACC ATT TCA AAA GAC ACG TCC AAG AAC CAG TTC TTC CTG AAC TTG
                  252         261         270         279         288         297         306


          N   S   V   T   D   A   D   T   A   V   Y   Y   C   A   R   G   P   R   P   D   C
          AAT TCT GTG ACC GAC GCG GAC ACG GCC GTC TAT TAC TGT GCG AGA GGC CCT CGC CCT GAT TGC
                  315         324         333         342         351         360         369


          T   T   I   C   Y   G   G   W   V   D   V   W   G   P   G   D   L   V   T   V   S
          ACA ACC ATT TGT TAT GGC GGC TGG GTC GAT GTC TGG GGC CCG GGA GAC CTG GTC ACC GTC TCC
                  378         387         396         405         414         423         432


          S   A   S   T   K   G   P   S   V   F   P   L   A   P   S   S   K   S   T   S   G
          TCA GCT AGC ACC AAG GGC CCA TCG GTC TTC CCC CTG GCA CCC TCC TCC AAG AGC ACC TCT GGG
                  441         450         459         468         477         486         495


          G   T   A   A   L   G   C   L   V   K   D   Y   F   P   E   P   V   T   V   S   W
          GGC ACA GCG GCC CTG GGC TGC CTG GTC AAG GAC TAC TTC CCC GAA CCG GTG ACG GTG TCG TGG
                  504         513         522         531         540         549         558


          N   S   G   A   L   T   S   G   V   H   T   F   P   A   V   L   Q   S   S   G   L
          AAC TCA GGC GCC CTG ACC AGC GGC GTG CAC ACC TTC CCG GCT GTC CTA CAG TCC TCA GGA CTC
                  567         576         585         594         603         612         621


          Y   S   L   S   S   V   V   T   V   P   S   S   S   L   G   T   Q   T   Y   I   C
          TAC TCC CTC AGC AGC GTG GTG ACC GTG CCC TCC AGC AGC TTG GGC ACC CAG ACC TAC ATC TGC
                  630         639         648         657         666         675         684


          N   V   N   H   K   P   S   N   T   K   V   D   K   K   A   E   P   K   S   C   D
          AAC GTG AAT CAC AAG CCC AGC AAC ACC AAG GTG GAC AAG AAA GCA GAG CCC AAA TCT TGT GAC
                  693         702         711         720         729         738         747


          K   T   H   T   C   P   P   C   P   A   P   E   L   L   G   G   P   S   V   F   L
          AAA ACT CAC ACA TGC CCA CCG TGC CCA GCA CCT GAA CTC CTG GGG GGA CCG TCA GTC TTC CTC
                  756         765         774         783         792         801         810


          F   P   P   K   P   K   D   T   L   M   I   S   R   T   P   E   V   T   C   V   V
          TTC CCC CCA AAA CCC AAG GAC ACC CTC ATG ATC TCC CGG ACC CCT GAG GTC ACA TGC GTG GTG
                  819         828         837         846         855         864         873


          V   D   V   S   H   E   D   P   E   V   K   F   N   W   Y   V   D   G   V   E   V
          GTG GAC GTG AGC CAC GAA GAC CCT GAG GTC AAG TTC AAC TGG TAC GTG GAC GGC GTG GAG GTG
                  882         891         900         909         918         927         936
```

```
H   N   A   K   T   K   P   R   E   E   Q   Y   N   S   T   Y   R   V   V   S   V
CAT AAT GCC AAG ACA AAG CCG CGG GAG GAG CAG TAC AAC AGC ACG TAC CGT GTG GTC AGC GTC
    945         954         963         972         981         990         999

L   T   V   L   H   Q   D   W   L   N   G   K   E   Y   K   C   K   V   S   N   K
CTC ACC GTC CTG CAC CAG GAC TGG CTG AAT GGC AAG GAG TAC AAG TGC AAG GTC TCC AAC AAA
    1008        1017        1026        1035        1044        1053        1062

A   L   P   A   P   I   E   K   T   I   S   K   A   K   G   Q   P   R   E   P   Q
GCC CTC CCA GCC CCC ATC GAG AAA ACC ATC TCC AAA GCC AAA GGG CAG CCC CGA GAA CCA CAG
    1071        1080        1089        1098        1107        1116        1125

V   Y   T   L   P   P   S   R   D   E   L   T   K   N   Q   V   S   L   T   C   L
GTG TAC ACC CTG CCC CCA TCC CGG GAT GAG CTG ACC AAG AAC CAG GTC AGC CTG ACC TGC CTG
    1134        1143        1152        1161        1170        1179        1188

V   K   G   F   Y   P   S   D   I   A   V   E   W   E   S   N   G   Q   P   E   N
GTC AAA GGC TTC TAT CCC AGC GAC ATC GCC GTG GAG TGG GAG AGC AAT GGG CAG CCG GAG AAC
    1197        1206        1215        1224        1233        1242        1251

N   Y   K   T   T   P   P   V   L   D   S   D   G   S   F   F   L   Y   S   K   L
AAC TAC AAG ACC ACG CCT CCC GTG CTG GAC TCC GAC GGC TCC TTC TTC CTC TAC AGC AAG CTC
    1260        1269        1278        1287        1296        1305        1314

T   V   D   K   S   R   W   Q   Q   G   N   V   F   S   C   S   V   M   H   E   A
ACC GTG GAC AAG AGC AGG TGG CAG CAG GGG AAC GTC TTC TCA TGC TCC GTG ATG CAT GAG GCT
    1323        1332        1341        1350        1359        1368        1377

L   H   N   H   Y   T   Q   K   S   L   S   L   S   P   G   K   .
CTG CAC AAC CAC TAC ACG CAG AAG AGC CTC TCC CTG TCT CCG GGT AAA TGA
    1386        1395        1404        1413        1422        1431
```

FIGURE   4a

Length of 7B6 light/Primatized: 720 bp;   Listed from: 1 to: 720;
Translated from: 1 to: 718   (Entire region);
Genetic Code used: Universal; Fri, May 26, 1995 11:10 AM

```
Frame 1  M   S   L   P   A   Q   L   L   G   L   L   L   L   C   V   P   G   S   S
         ATG AGC CTC CCT GCT CAG CTC CTC GGG CTG CTA TTG CTC TGC GTC CCC GGG TCC AGT
                  9           18          27          36          45          54

         G   E   V   V   M   T   Q   S   P   L   S   L   P   I   T   P   G   E   P   A   S
         GGG GAA GTT GTG ATG ACT CAG TCT CCA CTG TCC CTT CCC ATC ACA CCT GGA GAG CCG GCC TCC
             63          72          81          90          99          108         117

         I   S   C   R   S   S   Q   S   L   K   H   S   N   G   D   T   F   L   S   W   Y
         ATC TCC TGT AGG TCT AGT CAA AGC CTT AAA CAC AGT AAT GGA GAC ACC TTC CTG AGT TGG TAT
             126         135         144         153         162         171         180

         Q   Q   K   P   G   Q   P   P   R   L   L   I   Y   K   V   S   N   R   D   S   G
         CAG CAG AAG CCA GGC CAA CCT CCA AGG CTC CTG ATT TAT AAG GTT TCT AAC CGG GAC TCT GGG
             189         198         207         216         225         234         243

         V   P   D   R   F   S   G   S   G   A   G   T   D   F   T   L   K   I   S   A   V
         GTC CCA GAC AGA TTC AGC GGC AGT GGG GCA GGG ACA GAT TTC ACA CTG AAA ATC AGC GCA GTG
             252         261         270         279         288         297         306

         E   A   E   D   V   G   V   Y   F   C   G   Q   G   T   R   T   P   P   T   F   G
         GAG GCT GAA GAT GTT GGG GTT TAT TTC TGC GGG CAA GGT ACA AGG ACT CCT CCC ACT TTC GGC
             315         324         333         342         351         360         369

         G   G   T   K   V   E   I   K   R   T   V   A   A   P   S   V   F   I   F   P   P
         GGA GGG ACC AAG GTG GAA ATC AAA CGT ACG GTG GCT GCA CCA TCT GTC TTC ATC TTC CCG CCA
             378         387         396         405         414         423         432

         S   D   E   Q   L   K   S   G   T   A   S   V   V   C   L   L   N   N   F   Y   P
         TCT GAT GAG CAG TTG AAA TCT GGA ACT GCC TCT GTT GTG TGC CTG CTG AAT AAC TTC TAT CCC
             441         450         459         468         477         486         495

         R   E   A   K   V   Q   W   K   V   D   N   A   L   Q   S   G   N   S   Q   E   S
         AGA GAG GCC AAA GTA CAG TGG AAG GTG GAT AAC GCC CTC CAA TCG GGT AAC TCC CAG GAG AGT
             504         513         522         531         540         549         558

         V   T   E   Q   D   S   K   D   S   T   Y   S   L   S   S   T   L   T   L   S   K
         GTC ACA GAG CAG GAC AGC AAG GAC AGC ACC TAC AGC CTC AGC AGC ACC CTG ACG CTG AGC AAA
             567         576         585         594         603         612         621

         A   D   Y   E   K   H   K   V   Y   A   C   E   V   T   H   Q   G   L   S   S   P
         GCA GAC TAC GAG AAA CAC AAA GTC TAC GCC TGC GAA GTC ACC CAT CAG GGC CTG AGC TCG CCC
             630         639         648         657         666         675         684

         V   T   K   S   F   N   R   G   E   C   .
         GTC ACA AAG AGC TTC AAC AGG GGA GAG TGT TGA
             693         702         711         720
```

Length of 7B6 heavy/Primatized: 1437 bp; Listed from: 1 to: 1437;
Translated from: 1 to: 1435 (Entire region);
Genetic Code used: Universal; Fri, May 26, 1995 11:09 AM

```
ame 1  M   G   W   S   L   I   L   L   F   L   V   A   V   A   T   R   V   Q   C
       ATG GGT TGG AGC CTC ATC TTG CTC TTC CTT GTC GCT GTT GCT ACG CGT GTC CAG TGT
                9           18          27          36          45          54

:      V   Q   L   V   E   S   G   G   G   L   V   Q   P   G   G   S   L   R   V   S
;AG    GTG CAA CTG GTG GAG TCT GGG GGA GGC TTG GTC CAG CCT GGC GGG TCC CTG AGA GTC TCC
           63          72          81          90          99          108         117

:      A   V   S   G   F   T   F   S   D   H   Y   M   Y   W   F   R   Q   A   P   G
\GT    GCA GTC TCT GGA TTC ACC TTC AGT GAC CAC TAC ATG TAT TGG TTC CGC CAG GCT CCA GGG
           126         135         144         153         162         171         180

K   G   P   E   W   V   G   F   I   R   N   K   P   N   G   G   T   T   E   Y   A
AAG GGG CCG GAA TGG GTA GGT TTC ATT AGA AAC AAA CCG AAC GGT GGG ACA ACA GAA TAC GCC
        189         198         207         216         225         234         243

A   S   V   K   D   R   F   T   I   S   R   D   D   S   K   S   I   A   Y   L   Q
GCG TCT GTG AAA GAC AGA TTC ACC ATC TCC AGA GAT GAT TCC AAA AGC ATC GCC TAT CTG CAA
    252         261         270         279         288         297         306

M   S   S   L   K   I   E   D   T   A   V   Y   Y   C   T   T   S   Y   I   S   H
ATG AGC AGC CTG AAA ATC GAG GAC ACG GCC GTC TAT TAC TGT ACT ACA TCC TAC ATT TCA CAT
    315         324         333         342         351         360         369

C   R   G   G   V   C   Y   G   G   Y   F   E   F   W   G   Q   G   A   L   V   T
TGT CGG GGT GGT GTC TGC TAT GGA GGT TAC TTC GAA TTC TGG GGC CAG GGC GCC CTG GTC ACC
    378         387         396         405         414         423         432

V   S   S   A   S   T   K   G   P   S   V   F   P   L   A   P   S   S   K   S   T
GTC TCC TCA GCT AGC ACC AAG GGC CCA TCG GTC TTC CCC CTG GCA CCC TCC TCC AAG AGC ACC
    441         450         459         468         477         486         495

S   G   G   T   A   A   L   G   C   L   V   K   D   Y   F   P   E   P   V   T   V
TCT GGG GGC ACA GCG GCC CTG GGC TGC CTG GTC AAG GAC TAC TTC CCC GAA CCG GTG ACG GTG
    504         513         522         531         540         549         558

S   W   N   S   G   A   L   T   S   G   V   H   T   F   P   A   V   L   Q   S   S
TCG TGG AAC TCA GGC GCC CTG ACC AGC GGC GTG CAC ACC TTC CCG GCT GTC CTA CAG TCC TCA
    567         576         585         594         603         612         621

G   L   Y   S   L   S   S   V   V   T   V   P   S   S   S   L   G   T   Q   T   Y
GGA CTC TAC TCC CTC AGC AGC GTG GTG ACC GTG CCC TCC AGC AGC TTG GGC ACC CAG ACC TAC
    630         639         648         657         666         675         684

I   C   N   V   N   H   K   P   S   N   T   K   V   D   K   K   A   E   P   K   S
ATC TGC AAC GTG AAT CAC AAG CCC AGC AAC ACC AAG GTG GAC AAG AAA GCA GAG CCC AAA TCT
    693         702         711         720         729         738         747

C   D   K   T   H   T   C   P   P   C   P   A   P   E   L   L   G   G   P   S   V
TGT GAC AAA ACT CAC ACA TGC CCA CCG TGC CCA GCA CCT GAA CTC CTG GGG GGA CCG TCA GTC
    756         765         774         783         792         801         810

F   L   F   P   P   K   P   K   D   T   L   M   I   S   R   T   P   E   V   T   C
TTC CTC TTC CCC CCA AAA CCC AAG GAC ACC CTC ATG ATC TCC CGG ACC CCT GAG GTC ACA TGC
    819         828         837         846         855         864         873

V   V   V   D   V   S   H   E   D   P   E   V   K   F   N   W   Y   V   D   G   V
GTG GTG GTG GAC GTG AGC CAC GAA GAC CCT GAG GTC AAG TTC AAC TGG TAC GTG GAC GGC GTG
    882         891         900         909         918         927         936
```

```
E   V   H   N   A   K   T   K   P   R   E   E   Q   Y   N   S   T   Y   R   V   V
GAG GTG CAT AAT GCC AAG ACA AAG CCG CGG GAG GAG CAG TAC AAC AGC ACG TAC CGT GTG GTC
    945             954         963         972         981         990         999

S   V   L   T   V   L   H   Q   D   W   L   N   G   K   E   Y   K   C   K   V   S
AGC GTC CTC ACC GTC CTG CAC CAG GAC TGG CTG AAT GGC AAG GAG TAC AAG TGC AAG GTC TCC
    1008        1017        1026        1035        1044        1053        1062

N   K   A   L   P   A   P   I   E   K   T   I   S   K   A   K   G   Q   P   R   E
AAC AAA GCC CTC CCA GCC CCC ATC GAG AAA ACC ATC TCC AAA GCC AAA GGG CAG CCC CGA GAA
    1071        1080        1089        1098        1107        1116        1125

P   Q   V   Y   T   L   P   P   S   R   D   E   L   T   K   N   Q   V   S   L   T
CCA CAG GTG TAC ACC CTG CCC CCA TCC CGG GAT GAG CTG ACC AAG AAC CAG GTC AGC CTG ACC
    1134        1143        1152        1161        1170        1179        1188

C   L   V   K   G   F   Y   P   S   D   I   A   V   E   W   E   S   N   G   Q   P
TGC CTG GTC AAA GGC TTC TAT CCC AGC GAC ATC GCC GTG GAG TGG GAG AGC AAT GGG CAG CCG
    1197        1206        1215        1224        1233        1242        1251

E   N   N   Y   K   T   T   P   P   V   L   D   S   D   G   S   F   F   L   Y   S
GAG AAC AAC TAC AAG ACC ACG CCT CCC GTG CTG GAC TCC GAC GGC TCC TTC TTC CTC TAC AGC
    1260        1269        1278        1287        1296        1305        1314

K   L   T   V   D   K   S   R   W   Q   Q   G   N   V   F   S   C   S   V   M   H
AAG CTC ACC GTG GAC AAG AGC AGG TGG CAG CAG GGG AAC GTC TTC TCA TGC TCC GTG ATG CAT
    1323        1332        1341        1350        1359        1368        1377

E   A   L   H   N   H   Y   T   Q   K   S   L   S   L   S   P   G   K   .
GAG GCT CTG CAC AAC CAC TAC ACG CAG AAG AGC CTC TCC CTG TCT CCG GGT AAA TGA
    1386        1395        1404        1413        1422        1431
```

Length of 16C10 Lambda/Primatized : 711 bp;
Listed from: 1 to: 711;
Translated from: 1 to: 709 (Entire region);
Genetic Code used: Universal; Fri, May 26, 1995 11:08 AM

```
Frame 1  M   R   V   P   A   Q   L   L   G   L   L   L   L   W   L   P   G   A   R
         ATG AGG GTC CCC GCT CAG CTC CTG GGG CTC CTG CTG CTC TGG CTC CCA GGT GCA CGA
                     9               18              27              36              45          54


C   E   S   V   L   T   Q   P   P   S   V   S   G   A   P   G   Q   K   V   T   I ·
TGT GAG TCT GTC CTG ACA CAG CCG CCC TCA GTG TCT GGG GCC CCA GGG CAG AAG GTC ACC ATC
    63              72              81              90              99              108             117


S   C   T   G   S   T   S   N   I   G   G   Y   D   L   H   W   Y   Q   Q   L   P
TCG TGC ACT GGG AGC ACC TCC AAC ATT GGA GGT TAT GAT CTA CAT TGG TAC CAG CAG CTC CCA
    126             135             144             153             162             171             180


G   T   A   P   K   L   L   I   Y   D   I   N   K   R   P   S   G   I   S   D   R
GGA ACG GCC CCC AAA CTC CTC ATC TAT GAC ATT AAC AAG CGA CCC TCA GGA ATT TCT GAC CGA
    189             198             207             216             225             234             243


F   S   G   S   K   S   G   T   A   A   S   L   A   I   T   G   L   Q   T   E   D
TTC TCT GGC TCC AAG TCT GGT ACC GCG GCC TCC CTG GCC ATC ACT GGG CTC CAG ACT GAG GAT
    252             261             270             279             288             297             306


E   A   D   Y   Y   C   Q   S   Y   D   S   S   L   N   A   Q   V   F   G   G   G
GAG GCT GAT TAT TAC TGC CAG TCC TAT GAC AGC AGC CTG AAT GCT CAG GTA TTC GGA GGA GGG
    315             324             333             342             351             360             369


T   R   L   T   V   L   G   Q   P   K   A   A   P   S   V   T   L   F   P   P   S
ACC CGG CTG ACC GTC CTA GGT CAG CCC AAG GCT GCC CCC TCG GTC ACT CTG TTC CCG CCC TCC
    378             387             396             405             414             423             432


S   E   E   L   Q   A   N   K   A   T   L   V   C   L   I   S   D   F   Y   P   G
TCT GAG GAG CTT CAA GCC AAC AAG GCC ACA CTG GTG TGT CTC ATA AGT GAC TTC TAC CCG GGA
    441             450             459             468             477             486             495


A   V   T   V   A   W   K   A   D   S   S   P   V   K   A   G   V   E   T   T   T
GCC GTG ACA GTG GCC TGG AAG GCA GAT AGC AGC CCC GTC AAG GCG GGA GTG GAG ACC ACC ACA
    504             513             522             531             540             549             558


P   S   K   Q   S   N   N   K   Y   A   A   S   S   Y   L   S   L   T   P   E   Q
CCC TCC AAA CAA AGC AAC AAC AAG TAC GCG GCC AGC AGC TAC CTG AGC CTG ACG CCT GAG CAG
    567             576             585             594             603             612             621


W   K   S   H   R   S   Y   S   C   Q   V   T   H   E   G   S   T   V   E   K   T
TGG AAG TCC CAC AGA AGC TAC AGC TGC CAG GTC ACG CAT GAA GGG AGC ACC GTG GAG AAG ACA
    630             639             648             657             666             675             684


V   A   P   T   E   C   S   .
GTG GCC CCT ACA GAA TGT TCA TGA
    693             702             711
```

FIGURE 5b

Length of 16C10 heavy/primatized: 1431 bp;
Listed from: 1 to: 1431;
Translated from: 1 to: 1429   (Entire region);
Genetic Code used: Universal; Fri, May 26, 1995 11:08 AM

```
Frame 1  M   K   H   L   W   F   F   L   L   L   V   A   A   P   R   W   V   L   S
         ATG AAA CAC CTG TGG TTC TTC CTC CTC CTG GTG GCA GCT CCC AGA TGG GTC CTG TCC
                  9               18          27              36              45              54


         Q   V   Q   L   Q   E   S   G   P   G   L   V   K   P   S   E   T   L   S   L   T
         CAG GTG CAG CTG CAG GAG TCG GGC CCA GGA CTG GTG AAG CCT TCG GAG ACC CTG TCC CTC ACC
                  63              72          81              90              99              108             117


         C   A   V   S   G   G   S   I   S   G   G   Y   G   W   G   W   I   R   Q   P   P
         TGC GCT GTC TCT GGT GGC TCC ATC AGC GGT GGT TAT GGC TGG GGC TGG ATC CGC CAG CCC CCA
              126             135             144             153             162             171             180


         G   K   G   L   E   W   I   G   S   F   Y   S   S   S   G   N   T   Y   Y   N   P
         GGG AAG GGG CTG GAG TGG ATT GGG AGT TTC TAT AGT AGT AGT GGG AAC ACC TAC TAC AAC CCC
              189             198             207             216             225             234             243


         S   L   K   S   Q   V   T   I   S   T   D   T   S   K   N   Q   F   S   L   K   L
         TCC CTC AAG AGT CAA GTC ACC ATT TCA ACA GAC ACG TCC AAG AAC CAG TTC TCC CTG AAG CTG
              252             261             270             279             288             297             306


         N   S   M   T   A   A   D   T   A   V   Y   Y   C   V   R   D   R   L   F   S   V
         AAC TCT ATG ACC GCC GCG GAC ACG GCC GTG TAT TAC TGT GTG AGA GAT CGT CTT TTT TCA GTT
              315             324             333             342             351             360             369


         V   G   M   V   Y   N   N   W   F   D   V   W   G   P   G   V   L   V   T   V   S
         GTT GGA ATG GTT TAC AAC AAC TGG TTC GAT GTC TGG GGC CCG GGA GTC CTG GTC ACC GTC TCC
              378             387             396             405             414             423             432


         S   A   S   T   K   G   P   S   V   F   P   L   A   P   S   S   K   S   T   S   G
         TCA GCT AGC ACC AAG GGC CCA TCG GTC TTC CCC CTG GCA CCC TCC TCC AAG AGC ACC TCT GGG
              441             450             459             468             477             486             495


         G   T   A   A   L   G   C   L   V   K   D   Y   F   P   E   P   V   T   V   S   W
         GGC ACA GCG GCC CTG GGC TGC CTG GTC AAG GAC TAC TTC CCC GAA CCG GTG ACG GTG TCG TGG
              504             513             522             531             540             549             558


         N   S   G   A   L   T   S   G   V   H   T   F   P   A   V   L   Q   S   S   G   L
         AAC TCA GGC GCC CTG ACC AGC GGC GTG CAC ACC TTC CCG GCT GTC CTA CAG TCC TCA GGA CTC
              567             576             585             594             603             612             621


         Y   S   L   S   S   V   V   T   V   P   S   S   S   L   G   T   Q   T   Y   I   C
         TAC TCC CTC AGC AGC GTG GTG ACC GTG CCC TCC AGC AGC TTG GGC ACC CAG ACC TAC ATC TGC
              630             639             648             657             666             675             684


         N   V   N   H   K   P   S   N   T   K   V   D   K   K   A   E   P   K   S   C   D
         AAC GTG AAT CAC AAG CCC AGC AAC ACC AAG GTG GAC AAG AAA GCA GAG CCC AAA TCT TGT GAC
              693             702             711             720             729             738             747


         K   T   H   T   C   P   P   C   P   A   P   E   L   L   G   G   P   S   V   F   L
         AAA ACT CAC ACA TGC CCA CCG TGC CCA GCA CCT GAA CTC CTG GGG GGA CCG TCA GTC TTC CTC
              756             765             774             783             792             801             810


         F   P   P   K   P   K   D   T   L   M   I   S   R   T   P   E   V   T   C   V   V
         TTC CCC CCA AAA CCC AAG GAC ACC CTC ATG ATC TCC CGG ACC CCT GAG GTC ACA TGC GTG GTG
              819             828             837             846             855             864             873


         V   D   V   S   H   E   D   P   E   V   K   F   N   W   Y   V   D   G   V   E   V
         GTG GAC GTG AGC CAC GAA GAC CCT GAG GTC AAG TTC AAC TGG TAC GTG GAC GGC GTG GAG GTG
```

```
      882           891           900           909           918           927           936

H   N   A   K   T   K   P   R   E   E   Q   Y   N   S   T   Y   R   V   V   S   V
CAT AAT GCC AAG ACA AAG CCG CGG GAG GAG CAG TAC AAC AGC ACG TAC CGT GTG GTC AGC GTC
      945           954           963           972           981           990           999

L   T   V   L   H   Q   D   W   L   N   G   K   E   Y   K   C   K   V   S   N   K
CTC ACC GTC CTG CAC CAG GAC TGG CTG AAT GGC AAG GAG TAC AAG TGC AAG GTC TCC AAC AAA
      1008          1017          1026          1035          1044          1053          1062

A   L   P   A   P   I   E   K   T   I   S   K   A   K   G   Q   P   R   E   P   Q
GCC CTC CCA GCC CCC ATC GAG AAA ACC ATC TCC AAA GCC AAA GGG CAG CCC CGA GAA CCA CAG
      1071          1080          1089          1098          1107          1116          1125

V   Y   T   L   P   P   S   R   D   E   L   T   K   N   Q   V   S   L   T   C   L
GTG TAC ACC CTG CCC CCA TCC CGG GAT GAG CTG ACC AAG AAC CAG GTC AGC CTG ACC TGC CTG
.     1134          1143          1152          1161          1170          1179          1188

V   K   G   F   Y   P   S   D   I   A   V   E   W   E   S   N   G   Q   P   E   N
GTC AAA GGC TTC TAT CCC AGC GAC ATC GCC GTG GAG TGG GAG AGC AAT GGG CAG CCG GAG AAC
     1197          1206          1215          1224          1233          1242          1251

N   Y   K   T   T   P   P   V   L   D   S   D   G   S   F   F   L   Y   S   K   L
AAC TAC AAG ACC ACG CCT CCC GTG CTG GAC TCC GAC GGC TCC TTC TTC CTC TAC AGC AAG CTC
   1260          1269          1278          1287          1296          1305          1314

T   V   D   K   S   R   W   Q   Q   G   N   V   F   S   C   S   V   M   H   E   A
ACC GTG GAC AAG AGC AGG TGG CAG CAG GGG AAC GTC TTC TCA TGC TCC GTG ATG CAT GAG GCT
   1323          1332          1341          1350          1359          1368          1377

L   H   N   H   Y   T   Q   K   S   L   S   L   S   P   G   K   .
CTG CAC AAC CAC TAC ACG CAG AAG AGC CTC TCC CTG TCT CCG GGT AAA TGA
   1386          1395          1404          1413          1422          1431
```

Figure   6

Competitive Binding of CTLA-4Ig-Biotin to B7-1 TransfectedCHO Cells
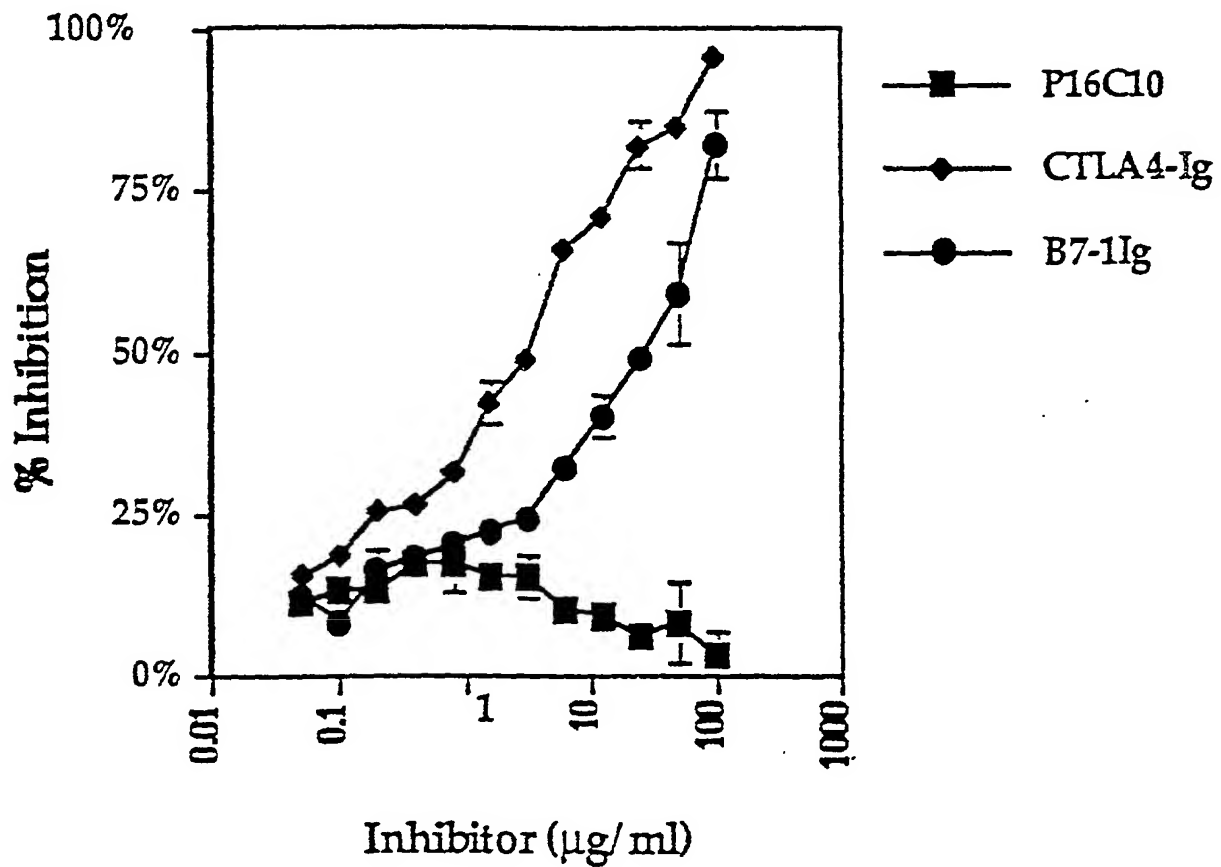in Presence of P16C10 MAb, CTLA-4Ig and B7-1Ig Fusion Proteins

Figure   7

Competitive Binding of P16C10-Biotin to B7-1 Transfected CHO Cells in Presence of P16C10 MAb, CTLA-4Ig and B7-1Ig Fusion Proteins
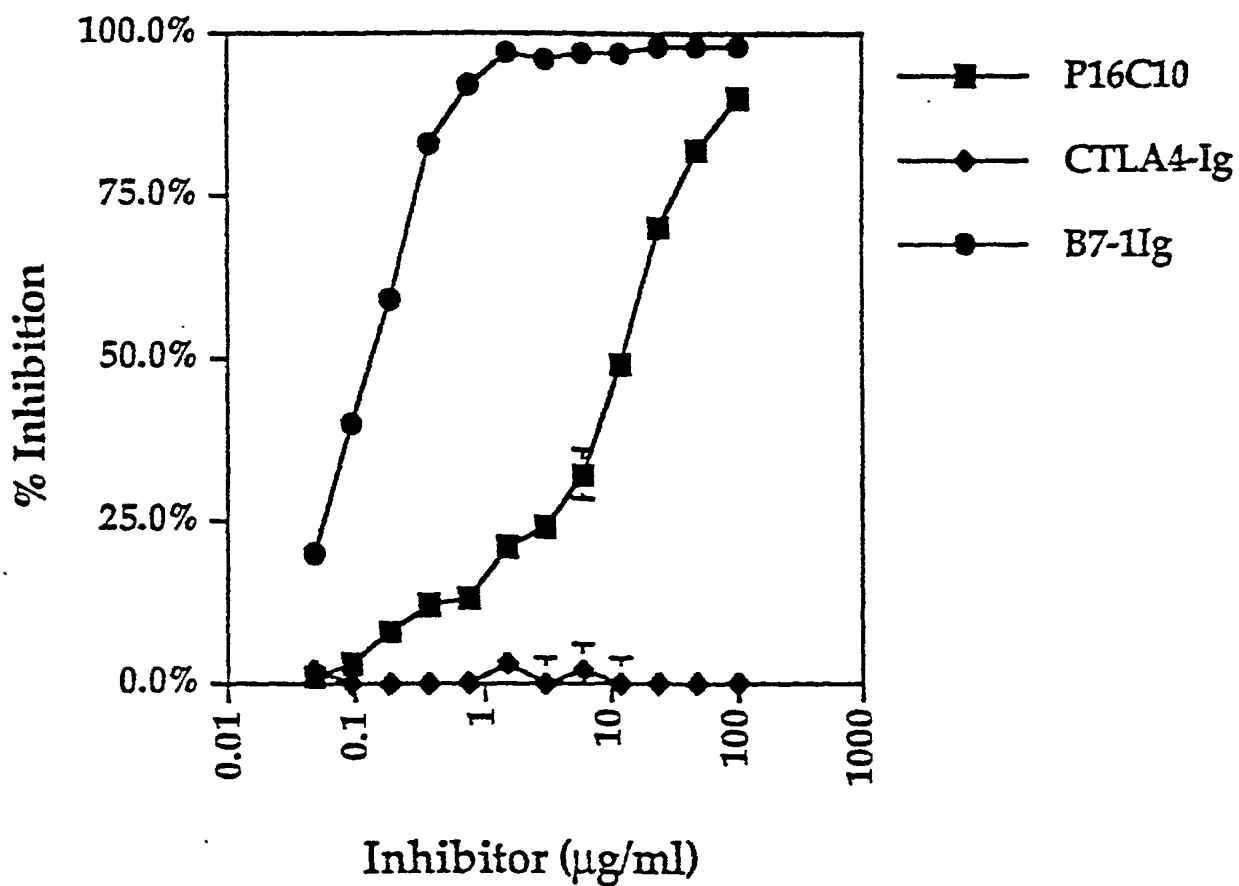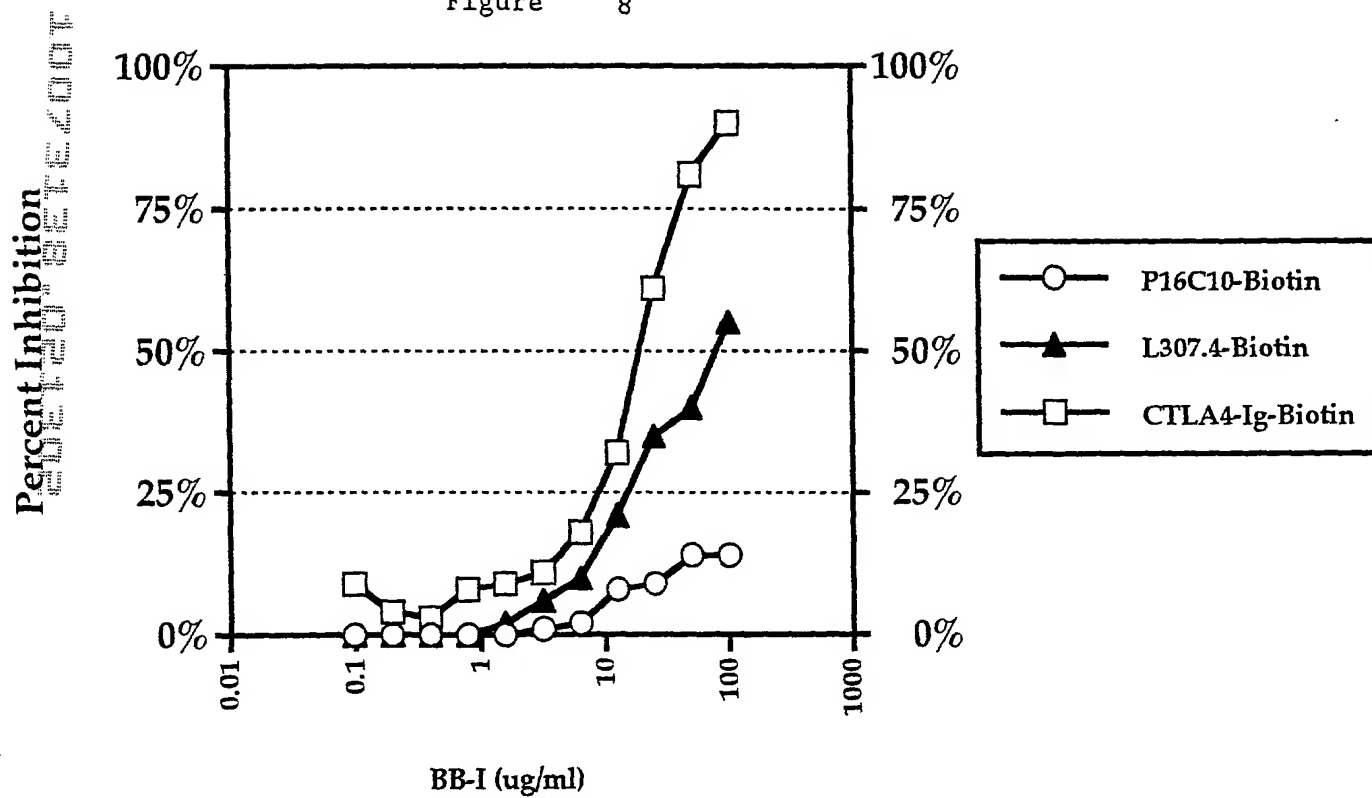
Figure 8

Percent Inhibition

BB-I (ug/ml)

Legend:
- P16C10-Biotin
- L307.4-Biotin
- CTLA4-Ig-Biotin

Figure 9

Legend:
- ○ P16C10
- ▲ L307.4
- □ B7-1Ig
- ◆ BB-1
- ◪ CTLA-4Ig

X-axis: Inhibitor (ug/mL)
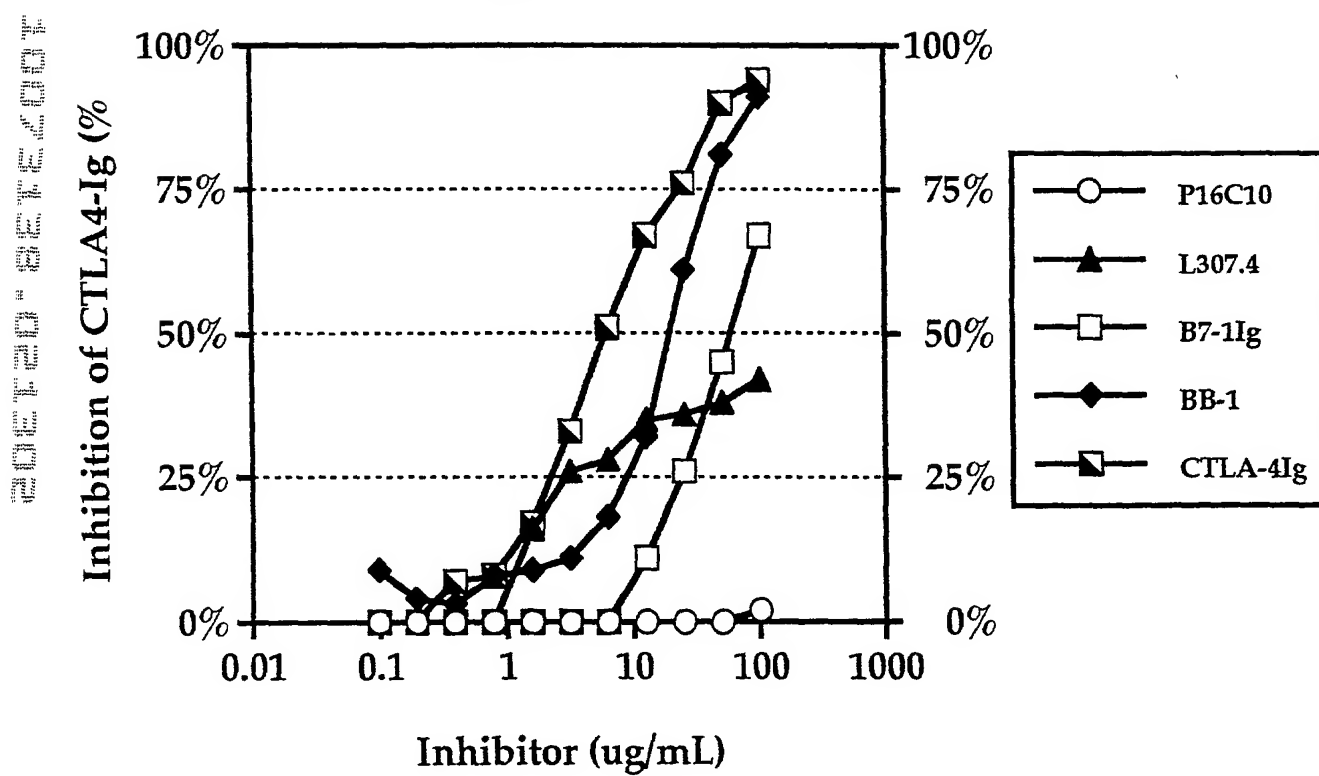Y-axis: Inhibition of CTLA4-Ig (%

Figure   10

Competitive Inhibition of Radiolabeled B7-1Ig Binding to CD28 Receptors on
Isolated Non-Activated Peripheral Blood T Cells using Unlabeled Binding Proteins
Recognizing Either B7-1 or CD28